

Montana Board of Oil and Gas Conservation

Environmental Assessment

Operator: Continental Resources, Inc.

Well Name/Number: Lewis 1-13H

Location: NW NE Section 13 T26N R56E

County: Richland, **MT;** **Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)

Long drilling time: No, 30 to 40 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig to drill to 20,109'MD/10,188'TVD, single lateral horizontal Bakken Formation well.

Possible H₂S gas production: Slight chance H₂S gas production (Mississippian Formations).

In/near Class I air quality area: Closest Class I air quality area is the Fort Peck Indian Reservation, about 11 miles to the northwest from this location.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☒ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: No special concerns – using triple rig to drill a 20,109'MD/10,188'TVD, single lateral horizontal Bakken Formation well test. If there are existing pipeline for gas in the area then gas must be tied into system or if no gas gathering system nearby gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, freshwater and freshwater mud system on surface hole and oil based invert drilling fluids for intermediate casing hole. Brine water will be used to drill the horizontal lateral.

High water table: No high water table anticipated at this surface location.

Surface drainage leads to live water: No, closest drainages are unnamed ephemeral tributary drainages to East Charley Creek, about 1/4 of a mile to the west and about 3/8 of a mile to the south from this location.

Water well contamination: No, closest water wells are about 3/4 of a mile to the southwest and about 3/4 of a mile to the southeast and all other wells are 1 mile and further from this location in any direction. Surface hole will be drilled with freshwater and freshwater drilling fluids. Surface casing will be set and cemented to surface from a depth of 1696'.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No Class I stream drainages in the area of review.

Mitigation:

- ☒ Lined reserve pit
- ☒ Adequate surface casing
- ☐ Berms/dykes, re-routed drainage
- ☒ Closed mud system
- ☒ Off-site disposal of solids/**liquids** (in approved facility)
- ☐ Other: _____

Comments: 1696' of steel surface casing cemented to surface is adequate to protect freshwater zones and cover the Fox Hills aquifer. Drill cuttings will be disposed of in the lined cuttings pit on the location. The cuttings pit will be backfilled after remaining fluids have evaporated. Oil based invert drilling fluids will be recycled. Completion fluids will be trucked to a commercial Class II disposal.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: No, stream crossings, crossing only ephemeral drainages.
 High erosion potential: No, moderate cut, up to 8.5' and small fill, up to 13.3', required.
 Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.
 Unusually large wellsite: Yes, large 500'X300' location size required.
 Damage to improvements: No, slight.
 Conflict with existing land use/values: Slight, surface use cultivated lands.

Mitigation

- ☐ Avoid improvements (topographic tolerance)
- ☐ Exception location requested
- ☒ Stockpile topsoil
- ☐ Stream Crossing Permit (other agency review)
- ☒ Reclaim unused part of wellsite if productive
- ☐ Special construction methods to enhance reclamation
- ☐ Other _____

Comments: Access will use existing county road, #146. About 65' of new road, will be constructed into this location off the existing county road #146. Drill cuttings will be disposed of in the lined cuttings pit. Oil based invert drilling fluids will be recycled. Completion fluids will be trucked to a commercial Class II disposal. Cuttings pit will be backfilled after remaining fluids have evaporated. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about ¼ of a mile to the northwest, about 5/8 of a mile to the southwest, about 1.25 miles to the southeast and about 1.5 miles to the northwest from this well location.

Possibility of H2S: Slight chance of H2S (Mississippian Formations).

Size of rig/length of drilling time: Triple drilling rig/short 30 to 40 days drilling time

Mitigation:

- ☒ Proper BOP equipment
- ☐ Topographic sound barriers
- ☐ H2S contingency and/or evacuation plan
- ☐ Special equipment/procedures requirements

___ Other: _____
Comments: Adequate surface casing cemented to surface and operational BOP equipment will mitigate any issues.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.
Proximity to recreation sites: None identified.
Creation of new access to wildlife habitat: No
Conflict with game range/refuge management: None in the area.
Threatened or endangered Species: Species identified as threatened by the USFWS are Pallid Sturgeon, Interior Lease Tern, Piping Plover and Whooping Crane. Species listed as candidate species are the Greater Sage Grouse and Sprague's Pipit. NH tracker website for this Township and Range lists only two (2) species of concern as the Eastern Red Bat and the Whooping Crane. NH Tracker website for this Township and Range lists only two (2) Potential species of concern as the Eastern Screech Owl and the Tennessee Warbler.

Mitigation:

- ___ Avoidance (topographic tolerance/exception)
- ___ Other agency review (DFWP, federal agencies, DSL)
- ___ Screening/fencing of pits, drillsite
- ___ Other: _____

Comments: Private cultivated surface lands. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern is discovered at this location. The Board of Oil & Gas has no jurisdiction over private surface lands.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites: None identified.

Mitigation

- ___ avoidance (topographic tolerance, location exception)
- ___ other agency review (SHPO, DSL, federal agencies)
- ___ Other: _____

Comments: On private cultivated surface lands. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite. The Board of Oil & Gas has no jurisdiction over private surface lands.

Social/Economic

(possible concerns)

- ___ Substantial effect on tax base
 - ___ Create demand for new governmental services
 - ___ Population increase or relocation
- Comments: Wildcat well. No concerns

Remarks or Special Concerns for this site

Well is a 20,109' MD/10,188' TVD, single lateral horizontal Bakken Formation well.

Summary: Evaluation of Impacts and Cumulative effects

No long term impacts expected. Some short term surface impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: May 16, 2012

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC
website

(Name and Agency)

Richland County water wells

(subject discussed)

May 16, 2012

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES

MONTANA COUNTIES, Richland County

(subject discussed)

May 16, 2012

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T26N R56E

(subject discussed)

May 16, 2012

(date)

If location was inspected before permit approval:

Inspection date: _____

Inspector: _____

Others present during inspection: _____